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[54] **SHIGELLA VECTOR FOR DELIVERING DNA TO A MAMMALIAN CELL**

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 C12N 15/00

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 435/172.3; 435/245; 435/252.3; 435/822

[58] **Field of Search** 424/234.1, 235.1,
 424/93.2; 435/245, 172.3, 252.1, 252.3,
 822, 172.1

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[57]

ABSTRACT

We describe a bacterial delivery system for the delivery of
 DNA and antigens into cells. We constructed an attenuated
 bacterial vector which enters mammalian cells and ruptures
 delivering functional plasmid DNA, such as a mammalian
 expression plasmid, and antigens into the cell cytoplasm.
 This *Shigella* vector was designed to deliver DNA to colonic
 surfaces, thus opening the possibility of oral and other
 mucosal DNA immunization and gene therapy strategies.
 The attenuated *Shigella* is also useful as a vaccine for
 reducing disease symptoms caused by *Shigella*.

17 Claims, 4 Drawing Sheets